

Comments of Halliburton Energy Services, Inc.
on EPA Permitting Guidance for Oil and Gas Hydraulic Fracturing Activities Using Diesel
Fuels – Draft: Underground Injection Control Program Guidance #84

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Halliburton Energy Services, Inc. (“HESI”) offers the following comments on the “Permitting Guidance for Oil and Gas Hydraulic Fracturing Activities Using Diesel Fuels – Draft: Underground Injection Control Program Guidance #84” (“Draft Guidance”), in response to the notice published by the U.S. Environmental Protection Agency (“EPA” or “Agency”) in the *Federal Register* on May 10, 2012.¹ HESI appreciates the opportunity to submit these comments and requests that they be included in the Agency’s administrative record and considered by EPA as it finalizes the Draft Guidance.

As discussed further below, HESI questions the need for the federal permitting scheme that EPA has proposed for hydraulic fracturing (“HF”) activities involving fluids containing diesel fuel. HESI believes that the permitting approach proposed by the Agency will impose unnecessary costs on well operators and create the potential for delays in oil and gas production. In addition, EPA is proposing to impose these burdens on a broader range of HF operations than intended by Congress. Rather than imposing unnecessary burdens on industry in contravention of the Safe Drinking Water Act (“SDWA”), HESI believes that EPA should defer to the existing oil and gas programs of the states, which have extensive expertise in regulating oil and gas activities, including HF operations.

These comments first explain the importance of HF to oil and natural gas production and HESI’s role as a leader in HF services. The comments then discuss why the proposed federal permitting scheme is unnecessary and will impose burdens on industry, and why EPA should defer to existing state oil and gas regulatory programs. The comments also address the need for EPA to narrow its proposed definition of “diesel fuel.” Finally, the comments address HESI’s support for a *de minimis* exception and the need for protection of trade secrets in connection with the disclosure of the composition of fracturing fluids.

Executive Summary

Hydraulic fracturing plays an indispensable role in the production of oil and natural gas across the United States. The use of HF has produced substantial economic benefits and assisted the United States as it pursues energy security, and is an essential technology for reducing the country’s greenhouse gas emissions.

HESI believes that the federal permitting scheme contemplated by the Draft Guidance for HF operations involving the use of diesel fuel is unnecessary given the longstanding regulation of HF by the states. The states have effectively regulated HF operations with such success that there is no evidence of any contamination of underground sources of drinking water (“USDWs”) as a result of the historic use of diesel fuel in fracturing fluids. The promulgation of a separate federal permitting scheme with requirements that address many of the same areas as the existing state programs will do very little to provide additional protections to USDWs, is not warranted, and will only divert scarce Agency resources from addressing actual threats to USDWs.

Moreover, HESI continues to believe that the decision to apply the Class II regulations is ill-advised. EPA has repeatedly recognized over many years that these regulations

¹ 77 Fed. Reg. 27,451 (May 10, 2012).

are not well-suited to a short-term activity that is fundamentally different from the waste disposal and other activities for which the Class II regulations were principally designed.

Despite EPA's efforts to modify the "round hole" of the Class II regulations so that it accommodates the "square peg" of hydraulic fracturing, the approach to federal regulation adopted in the Draft Guidance will impose unnecessary burdens on industry. Among other things, HESI believes the proposed definition of diesel fuel is too broad and that the proposed federal permitting requirements will be applied to the use of materials in fracturing fluids that Congress never intended for EPA to regulate under the SDWA. While HESI supports the use of Chemical Abstract Service Registry Numbers ("CASRNs") to identify chemical substances considered diesel fuel, the six substances considered by the Draft Guidance as "diesel fuel" go beyond the ordinary meaning of the term.

Second, HESI believes the Draft Guidance would impose permitting and related requirements that are unnecessary and overly burdensome, and would create the potential for significant delays in oil and natural gas production. For example, the Draft Guidance would require extensive information to be submitted with a permit which goes beyond what the states have already deemed necessary. In light of these burdens and the lack of any evidence that their imposition is essential to protect USDWs, EPA's proposed approach is inconsistent with the requirements of the SDWA. The states are in the best position to regulate HF activities, and EPA should therefore defer to the existing oil and gas regulatory programs instead of applying an ill-fitting and burdensome regulatory scheme.

If EPA nevertheless proceeds with its federal permitting scheme, HESI also supports the inclusion of a *de minimis* exception to the permitting requirement for HF activities involving fluids containing diesel fuel. HESI believes that the threshold for a *de minimis* exception should be based not only on the specific amount of diesel fuel in an additive itself, but also on the amount of diesel fuel in the overall fracturing fluid mixture. HESI believes that a threshold of one percent for both purposes is protective of USDWs and will reduce the regulatory burden on industry.

Finally, EPA's authority to regulate HF activities under the SDWA is based on the use of diesel fuel in the fracture fluid. As such, it is inappropriate and beyond EPA's authority to require that the complete composition of fracture fluids, including the volume and range of concentrations for each constituent, be submitted with an application for a UIC permit. Instead, EPA should only require that information relating specifically to diesel fuel used in fracturing fluid be submitted to the Agency. Regardless of what information is submitted to EPA, protections for the identities and concentrations of chemicals that are trade secrets should be specifically referenced in the Draft Guidance.

I. Introduction

Hydraulic fracturing plays a key role in the development of our nation's oil and natural gas resources. As such, HF has been an essential part of the substantial economic benefits provided by oil and natural gas production activities across the United States, and is instrumental to pursuing energy security.

Hydraulic fracturing is required to effectively access many domestic supplies of oil and natural gas found in shales and other low permeability formations. This technology has been viewed as the “technological key to the economic recovery of shale gas.”² For example, the Natural Gas Subcommittee of the Secretary of Energy Advisory Board noted that:

The economic significance of [shale gas] is potentially very large. While estimates vary, well over 200,000 jobs (direct, indirect, and induced) have been created over the last several years by the domestic production of shale gas, and tens of thousands more will be created in the future. . . . The price of natural gas has fallen by more than a factor of two since 2008, benefiting consumers in the lower cost of home heating and electricity.

The rapid expansion of production is rooted in change in applications of technology and field practice. It had long been recognized that substantial supplies of natural gas were embedded in shale rock. But it was only in 2002 and 2003 that the combination of two technologies working together – hydraulic fracturing and horizontal drilling – made shale gas commercial.³

Similarly, a recent report examining the economic impact of shale gas development found that the shale gas industry alone supported 600,000 jobs in 2010, a number that is expected to grow to 1.6 million by 2035.⁴ The report also concluded that shale gas contributed \$76 billion to the nation’s gross domestic product in 2010 and that this contribution is expected to triple to \$231 billion by 2035.⁵

Hydraulic fracturing also plays an essential role in achieving energy security. In a recent meeting of the Group of Eight (“G8”), the United States committed to supporting the development of HF technology “to allow for the safe development of energy sources” as the G8 pursues energy security with a “renewed focus on safety and sustainability.”⁶

The increased use of natural gas that has been made possible by HF also offers significant environmental benefits, including a reduction in the emission of greenhouse gases. For example, a recent study found that:

Natural gas from the Marcellus shale has generally lower life cycle [greenhouse gas] emissions than coal for production of electricity in the absence of any effective carbon capture and storage processes,

² Ground Water Protection Council, *et. al.*, *Modern Shale Gas Development in the United States: A Primer* at ES-4 (April 2009) (“*Shale Gas Primer*”).

³ Secretary of Energy Advisory Board, *Shale Gas Production Subcommittee Ninety-Day Report* at 7-8 (footnote omitted) (2011) (“*Ninety-day Report*”), available at http://www.shalegas.energy.gov/resources/081811_90_day_report_final.pdf.

⁴ HIS Global Insight, *The Economic and Employment Contributions of Shale Gas in the United States* at v (Dec. 2011).

⁵ *Id.*

⁶ Group of Eight, *Camp David Declaration* (May 19, 2012), available at <http://www.whitehouse.gov/the-press-office/2012/05/19/camp-david-declaration>.

by 20-50% depending upon plant efficiencies and natural gas emissions variability.⁷

Thus, the use of HF allows the avoidance of emissions of large quantities of greenhouse gases to the atmosphere on a lifecycle basis, thereby facilitating efforts to address global warming.

HESI has been an industry leader in providing fracture stimulation services for oil and gas wells since pioneering HF technology in the late 1940s. Over the past 60 years, HESI has performed HF services on hundreds of thousands of wells in a wide variety of geographic settings and formations around the world and has developed numerous innovations related to the HF process. This experience includes a significant amount of HF work for well operators developing oil and natural gas resources across the United States.

In addition, HESI has worked with EPA for many years on the issue of diesel fuel use in HF operations. For example, HESI was one of three companies that signed a Memorandum of Agreement with EPA in 2003 to eliminate the use of diesel fuel in fluids used in hydraulically fracturing coalbeds that contain USDWs.⁸

In light of this extensive experience, HESI is well-qualified to comment on EPA's Draft Guidance and its potential impact on HF operations and the oil and gas industry.

II. General Comments

A. A Separate Federal Permitting Scheme for HF Operations Involving the Use of Diesel Fuel Is Not Warranted

1. Use of diesel fuel in fracturing fluids is minimal

The Draft Guidance seeks to impose a new federal permitting system on operators that use diesel fuel in fluids used to hydraulically fracture oil and gas wells in states where EPA administers the Class II UIC permitting program ("direct implementation" or "DI" states).⁹ However, a new federal permitting system for diesel fuels used in fracturing fluids is unnecessary given that the use of diesel fuel in fracturing fluids in these states – as it is across the U.S. – is minimal. HESI itself has eliminated diesel fuel (as industry understands that term) entirely in all of the fluids it uses in its U.S. HF operations.

While not all service companies may have completely eliminated the use of diesel fuel in fracturing fluids, its use industry-wide is clearly very limited. As EPA itself acknowledges, in states where the proposed federal permitting system would apply, only about

⁷ M. Jiang, *et al.*, *Life cycle greenhouse gas emissions of Marcellus shale gas*, Environ. Res. Lett. 6 (July-Sept. 2011), available at http://iopscience.iop.org/1748-9326/6/3/034014/pdf/1748-9326_6_3_034014.pdf.

⁸ Elimination of Diesel Fuel in Hydraulic Fracturing Fluids Injected into Underground Sources of Drinking Water During Hydraulic Fracturing of Coalbed Methane Wells, EPA - BJ Serv. Co., Halliburton Energy Serv., Inc., & Schlumberger Tech. Corp., Dec. 12, 2003, available at http://www.epa.gov/safewater/uic/pdfs/moa_uic_hyd_fract.pdf.

⁹ While the Draft Guidance purports to apply only in DI states, EPA's website and the Draft Guidance itself make clear that UIC permits – not just state drilling permits – will be required for wells that are to be hydraulically fractured with fluids containing diesel fuel in primacy states as well as in DI states.

two percent of hydraulically fractured wells would be subject to the permitting requirements even using the Agency's expanded definition of "diesel fuel."¹⁰ For example, FracFocus currently contains records for approximately 1,940 hydraulically fractured wells in Pennsylvania.¹¹ Based on EPA's estimate, the federal permitting system would apply to only 39 of these wells. There is little demonstrated need for the Agency to devote scarce resources to establishing a separate federal permitting system for such a limited universe of wells.

2. Hydraulic fracturing poses minimal risk to USDWs

This lack of need for a separate federal permitting system for a small number of wells is underscored by the fact the risk of HF fluids contaminating USDWs is minimal. The Agency itself previously reached this conclusion. In 2004 EPA issued a report concerning the potential impacts of hydraulic fracturing of coalbed methane ("CBM") wells on drinking water supplies.¹² In its report, EPA examined the possibility that HF activities could cause the creation of a hydraulic connection to an adjacent USDW and found that:

The low permeability of relatively unfractured shale may help to protect USDWs from being affected by hydraulic fracturing fluids in some basins. . . . Shale's ability to act as a barrier to fracture height growth is primarily due to the stress contrast between the coalbed and the shale.¹³

The Agency concluded that based on this and other factors, "the injection of hydraulic fracturing fluids into CBM wells poses little or no threat to USDWs."¹⁴

A number of other studies have reached similar conclusions. For example in 2011 the New York State Department of Environmental Conservation ("NYSDEC") released a revised draft Supplemental Generic Environmental Impact Statement ("SGEIS") addressing the potential environmental impacts of natural gas production using horizontal drilling and high volume HF.¹⁵ In this draft SGEIS, NYSDEC came to the conclusion that hydraulic fracturing of shales does not pose any risk to drinking water supplies associated with the fluids pumped into the target formation during the HF process.¹⁶ As part of its preparation of its revised draft SGEIS, NYSDEC had a further review of this issue undertaken by ICF International ("ICF") – a highly-regarded scientific firm – that focused specifically on the risks to drinking water aquifers posed

¹⁰ See 77 Fed. Reg. 27,451, 27,453 (May 10, 2012).

¹¹ Based on well records posted as of August 22, 2012 on FracFocus.org, available at <http://fracfocus.org/>.

¹² Environmental Protection Agency, Evaluation of Impacts to Underground Sources of Drinking Water by Hydraulic Fracturing of Coalbed Methane Reservoirs (2004) ("2004 EPA Study"), available at http://water.epa.gov/type/groundwater/uic/class2/hydraulicfracturing/wells_coalbedmethanestudy.cfm. In focusing on hydraulic fracturing of CBM wells, EPA recognized that it was addressing a "worst case" scenario given that coalbeds tend to be shallower than other types of unconventional gas formations such as shales and tight sands, and that the findings of this study would certainly be applicable to these other geological formations as well. *Id.* at ES-7.

¹³ *Id.* at ES-17.

¹⁴ *Id.* at ES-16.

¹⁵ See New York Department of Environmental Conservation, *Draft Supplemental Generic Environmental Impact Statement on the Oil, Gas and Solution Mining Regulatory Program*, at 6-37 (2011) ("Revised Draft SGEIS"), available at <http://www.dec.ny.gov/energy/75370.html>.

¹⁶ *Id.* at 6-37.

by subsurface migration of fracturing fluids from the Marcellus Shale. ICF's analysis again confirmed that the findings made in the 2004 EPA study regarding hydraulic fracturing of coalbeds apply equally to shale and that there would not be any risk of subsurface migration of fluids from the Marcellus Shale to any drinking water sources.¹⁷

HESI's own consultant, Gradient, recently reached a similar conclusion based on its evaluation of human health risks associated with hydraulic fracturing of shales. This evaluation confirmed the draft SGEIS conclusion that HF operations do not pose any significant risk to drinking water supplies, and went on to say that:

Our analysis of hypothetical upward migration of HF constituents from the Marcellus also confirms that migration of HF fluid additives from the Marcellus Shale up through overlying bedrock to a surface aquifer is an implausible chemical migration pathway. The thickness of the overlying confining rock layers, and the effective hydraulic isolation that these overlying layers have provided for millions of years will sequester fluid additives within the bedrock far below drinking water aquifers. Even if such a pathway were hypothetically assumed, the rate of migration would be such that the dilution/attenuation of groundwater would be significant, thereby reducing the HF fluid constituent concentrations in drinking water (e.g., in a shallow aquifer), to concentrations that are well below health-based standards, and that would not pose a threat to human health.¹⁸

In addition, recent research has provided further evidence that limitations on fracture height growth also ensure that fracturing fluids do not pose a risk to USDWs. One such study compared real fracture-growth data with height-growth limiting mechanisms to assess why hydraulic fractures are vertically constrained.¹⁹ The study concluded that:

Real data collected using microseismic and microdeformation fracture-mapping technologies on many thousands of hydraulic fracturing jobs indicate that hydraulic-fracture heights are relatively well-contained. The directly measured height growth is often less than conventional hydraulic-fracture propagation models predict because of a number of containment mechanisms. . . . Some of those mechanisms include complex geologic layering, changing material properties, the presence of higher-permeability layers, the presence of natural fractures, formation of hydraulic-fracture networks, and the effects of high fluid leakoff. . . .

Fracture physics, formation mechanical properties, the layered depositional environment, and other factors all conspire to limit

¹⁷ *Id.* at App. 11 at 30, Figure 4.

¹⁸ Gradient, *Human Health Risk Evaluation for Hydraulic Fracturing Fluid Additives* at ES 10 (Jan. 10, 2012).

¹⁹ Kevin Fisher & Norm Warpinski, *Hydraulic Fracture-Height Growth: Real Data*, 73 SPE Production & Operations 1 (Feb. 2012).

hydraulic-fracture-height growth, causing it to remain in nearby vicinity of the targeted reservoirs.²⁰

These and other studies confirm that it is highly unlikely that HF would present a significant risk to USDWs through any of the potential pathways of contamination identified by EPA.²¹ Several of the pathways – such as pumping fluids into a USDW (Pathway #6) or lateral migration to a USDW (Pathway #5) – do not present significant concerns because of the depths at which most HF operations take place. For example, hydraulic fracturing of shales in formations such as the Marcellus, the Bakken, or the Eagle Ford take place at depths of 4,000 feet below ground surface or more, well below the depths of most USDWs. Moreover, the industry has for a number of years avoided direct pumping of fracturing fluids containing diesel fuel into coalbeds that are co-located with USDWs. In addition, unlike typical underground injection control (“UIC”) wells, any lateral migration of fluids from an oil and gas production well is effectively limited by the pumping that occurs during the production phase, which has the effect of removing a substantial portion of the fracturing fluids from the formation entirely and which creates a hydraulic gradient toward the well rather than away from the well as would be the case for a typical Class II UIC well.

These same factors would effectively preclude any potential for fracturing fluids to migrate from the target formation through a confining zone to reach a USDW (Pathway #3). For example, the depth of typical HF operations makes this type of migration extremely unlikely due to the presence of multiple confining layers between the target formation and USDWs and the distance fluids would have to travel to reach a USDW. Indeed, the same mechanisms that have trapped brines in a formation such as the Marcellus Shale for hundreds of millions of years would likewise prevent fracturing fluids from migrating any significant distance towards shallow USDWs.

The remaining pathways identified by EPA – migration through a faulty well casing (Pathway # 1), migration through the annulus between the casing and the well bore (Pathway # 2), and migration through an improperly abandoned well (Pathway # 4) – are all effectively addressed by state oil and gas regulatory programs.

This record demonstrates that there is minimal risk that hydraulic fracturing fluids will contaminate USDWs, regardless of whether diesel fuel is used.²² In fact, the Secretary of Energy Shale Gas Advisory Board concluded that:

Regulators and geophysical experts agree that the likelihood of properly injected fracturing fluid reaching drinking water through

²⁰ *Id.* at 16.

²¹ *Draft Guidance*, Appendix A.

²² EPA must also bear in mind that it is proposing to impose substantial regulatory requirements on the act of introducing diesel fuel into a formation that already contains hydrocarbons, in many cases including the crude oil from which diesel fuel is derived. The Agency has not addressed the necessity of regulating an activity that would effectively add a material to a formation in which it is already found.

fractures is remote where there is a large depth separation between drinking water sources and the production zone.²³

Based on this record, it is not clear why – after five years of not exercising its authority and allowing the states to continue to regulate HF operations involving the use of diesel fuel in fracturing fluids – EPA now seeks to ignore the state permitting programs that are successfully protecting USDWs and impose its own permitting requirements.

3. The states already effectively regulate hydraulic fracturing operations

In proposing its federal permitting system, EPA also fails to adequately acknowledge the extensive and longstanding programs for the regulation of HF operations and other aspects of oil and gas production developed by the states. The substantial and comprehensive actions taken by states like Pennsylvania and New York to regulate hydraulic fracturing activities within their borders have been highly effective in protecting drinking water resources. Instead of imposing a regulatory framework incompatible with hydraulic fracturing, EPA should defer to existing state programs to the maximum extent possible.

Regulation of oil and gas production has always been primarily a matter for the states to handle because the environmental impacts of oil and gas production are mainly local in nature, not national, and require controls tailored to local geologic and other conditions. As a result, state regulatory agencies are in the best position to tailor regulatory requirements to local geological and other conditions in a way that will protect the environment, while allowing the production of critical supplies of oil and natural gas to proceed in an effective manner. According to the Department of Energy,

State regulation of the environmental practices related to shale gas development, usually with federal oversight, can more effectively address the regional and state-specific character of the activities, compared to one-size-fits-all regulation at the federal level. Some of these specific factors include: geology, hydrology, climate, topography, industry characteristics, development history, state legal structures, population density, and local economics.²⁴

The Ground Water Protection Council (“GWPC”) has also reviewed state regulation of oil and gas production and concluded:

The regulation of oil and gas field activities is managed best at the state level where regional and local conditions are understood and where regulations can be tailored to fit the needs of the local environment. Hence, the experience, knowledge and information

²³ *Ninety-day Report* at 19.

²⁴ *Shale Gas Primer* at ES-3.

necessary to regulate effectively most commonly rests with state regulatory agencies²⁵

The state regulatory programs typically include a number of provisions that are designed to protect the environment.²⁶ These provisions generally include detailed requirements for permitting of oil and gas wells; in fact, “[a]ll states require a permit before an operator can drill and operate a gas well.”²⁷ In addition, state oil and gas programs usually have requirements with respect to construction of wells using zonal isolation techniques such as casing and cementing, and plugging and abandonment of wells, among other things.

In fact, two of the states where the Draft Guidance would apply – Pennsylvania and New York – have been extremely active in amending their oil and gas regulations to specifically address the unique attributes of HF. From 2010 to 2011 the Pennsylvania Department of Environmental Protection (“PADEP”) conducted a series of rulemakings to revise its oil and gas regulations in response to the recent development of the shale gas industry in Pennsylvania.²⁸ The revisions addressed a host of aspects of oil and gas production, ranging from well construction and operation to the treatment of flowback water and produced waters. Included in this comprehensive rulemaking were new cementing and casing construction and testing requirements,²⁹ and requirements that operators restore or replace any contaminated or diminished water supplies.³⁰ PADEP conducted this rulemaking with significant public input to ensure that the final regulations took into account comments from all interested stakeholders. The end result was a comprehensive, cradle-to-grave rulemaking process which further ensures that Pennsylvania regulators have the tools necessary to effectively regulate hydraulic fracturing within Pennsylvania, including HF activities using fluids containing diesel fuels.

Regulators in New York have undertaken an equally comprehensive rulemaking process to address the potential increased production of natural gas made possible through the use of HF. In 2009, NYSDEC released an extensive draft SGEIS addressing in detail the potential environmental impacts of natural gas production using horizontal drilling and high volume HF, and received approximately 13,000 comments from interested stakeholders.³¹ Based on these public comments, NYSDEC released an even more extensive revised draft SGEIS in late 2011,³²

²⁵ Ground Water Protection Council, *State Oil and Natural Gas Regulations Designed to Protect Water Resources* (report prepared for the U.S. Department of Energy’s National Energy Technology Laboratory) at 6 (2009), available at:

[http://www.gwpc.org/sites/default/files/state oil and gas regulations designed to protect water resources 0.pdf](http://www.gwpc.org/sites/default/files/state%20oil%20and%20gas%20regulations%20designed%20to%20protect%20water%20resources%20.pdf).

²⁶ *Id.* at 17.

²⁷ *Shale Gas Primer* at 26.

²⁸ Even prior to these rulemakings, a review of PADEP’s regulatory program for HF operations by STRONGER (State Review of Oil and Natural Gas Environmental Regulations) found that the program was well-managed, professional and meeting its program objectives. STRONGER, *Pennsylvania Hydraulic Fracturing State Review* at 4 (Sept. 2010), available at

<http://67.20.79.30/sites/all/themes/stronger02/downloads/PA%20HF%20review%20print%20version.pdf>.

²⁹ See 25 Pa. Code §§ 78.83, 78.83a, 78.83b, 78.83c, 78.84; 78.85; & 78.88 (recently revised sections pertaining to well casing and cementing).

³⁰ See 25 Pa. Code § 78.51.

³¹ See New York State Department of Environmental Conservation, *Supplemental Generic Environmental Impact Statement on the Oil, Gas and Solution Mining Regulatory Program* (Sept. 2009), available at <http://www.dec.ny.gov/energy/58440.html>.

³² See *Revised Draft SGEIS*.

which was the subject of over 66,000 public comments.³³ NYSDEC has gone to great lengths to craft an SGEIS which addresses the production of natural gas using horizontal drilling and HF. Although final regulations have not been published, it would be hard to imagine that such a comprehensive and in-depth rulemaking process would not produce regulations that would be more than fully effective in addressing the unique attributes of HF operations.

The effectiveness of these state regulatory programs in protecting USDWs is reflected in the fact there have been no confirmed instances of fracturing fluids, including fracturing fluids containing diesel fuel, contaminating drinking water aquifers. For example, in its 2004 report, the Agency found that, although thousands of CBM wells are fractured annually, there were “no confirmed cases that are linked to fracturing fluid injection into CBM wells or subsequent underground movement of fracturing fluids.”³⁴ More recently, EPA Administrator Jackson testified before the House Oversight and Government Reform Committee that she was “not aware of any proven case where the fracking process itself has affected water.”³⁵

State regulators have likewise repeatedly agreed that there have been no confirmed instances of fracturing fluids, including diesel fuel, contaminating drinking water aquifers. The GWPC reached this conclusion based on a comprehensive survey of state regulators in 1998.³⁶ Moreover, as part of its SGEIS process NYSDEC surveyed regulatory officials from 15 states in 2009, each of whom stated that despite widespread use of HF, they were unaware of groundwater contamination resulting from the procedure.³⁷ This conclusion was also recently reached by researchers at the University of Texas at Austin. In a report released earlier this year, researchers at the University’s Energy Institute concluded that “[n]o evidence of chemicals from hydraulic fracturing fluid has been found in aquifers as a result of fracturing operations.”³⁸

The effectiveness of existing state regulatory programs demonstrates there is no need for a separate federal permitting system for the DI states. As such, instead of imposing a regulatory framework incompatible with hydraulic fracturing, EPA should defer to existing state programs to the maximum extent possible and should rely on the experience and knowledge state permitting authorities have amassed from their years of permitting HF activities.

³³ Lisa Song, *New York Weighs 66,000 Comments on Pending Fracking Regulations* (April 19, 2012), available at <http://insideclimate news.org/news/20120419/new-york-dec-fracking-regulations-public-comments-natural-gas>.

³⁴ 2004 EPA Study at ES-1.

³⁵ *Pain at the Pump: Policies that Suppress Production of Oil and Gas Before the H. Comm. on Oversight & Gov’t Reform*, Rep. No. 112-54, at 87 (2011), available at <http://oversight.house.gov/wp-content/uploads/2012/04/5-24-11-Full-Committee-Hearing-Transcript.pdf>.

Jim Angle, *Tempers Flare at Hearing on EPA Policies*, FoxNews.com (May 24, 2011), available at <http://www.foxnews.com/politics/2011/05/24/tempers-flare-hearing-epa-policies/>.

³⁶ See also *States’ Experience With Hydraulic Fracturing: A Survey of the Interstate Oil and Gas Compact Commission* (July 2002).

³⁷ See *Revised Draft SGEIS* at 6-52.

³⁸ The University of Texas at Austin, Energy Institute, *Fact-Based Regulation for Environmental Protection in Shale Gas Development* at 18 (Feb. 2012), available at http://energy.utexas.edu/images/ei_shale_gas_regulation120215.pdf.

B. EPA's Class II Regulations Should Not Be Applied to Hydraulic Fracturing Operations

Having chosen to exercise its SDWA authority despite the lack of any demonstrated need to do so, EPA proposes to do so in a way that will increase rather than minimize the burdens that its decision will impose on the industry. In particular, EPA's Draft Guidance proposes to apply the Agency's Class II UIC regulations to HF operations involving the use of diesel fuel. As EPA is well aware, regulation of HF activities under the Class II regulations is inappropriate because the Class II regulations do not take into account the unique nature of hydraulic fracturing.

In fact, the Agency itself has previously acknowledged that "EPA's Class II regulations were not designed to, and do not specifically address the unique technical and temporal attributes of hydraulic fracturing."³⁹ EPA has previously noted that hydraulic fracturing is typically a one-time activity (often taking only a couple of hours) and that it did not seem entirely appropriate to categorize a well being hydraulically fractured as a Class II well for its entire operational life – which could encompass many years – because of a temporary activity such as the HF process.⁴⁰ As a result, the Agency expressed concern about "according 'full' Class II status" to oil and gas wells being hydraulically fractured to increase production because the production of natural gas in Alabama could be impeded as a result of the imposition of certain regulatory requirements applicable to Class II wells, contrary to the mandate of Congress.⁴¹

With the publication of the Draft Guidance, EPA now reverses course and elects to apply the Class II regulations to oil and gas wells being hydraulically fractured. However, the Agency's previous concerns are still applicable. Accordingly, HESI believes EPA should reconsider its decision to regulate HF activities under the Class II UIC program.

C. The Draft Guidance Will Impose Additional and Unnecessary Burdens on Industry and Could Result in Delays in Oil and Gas Production

The Draft Guidance recognizes the mismatch between hydraulic fracturing and the Class II regulations and is, in essence, an effort to ameliorate the myriad problems created by trying to make these federal UIC regulations fit an activity for which they are fundamentally unsuited. However, as discussed below, even under the Draft Guidance the requirement to obtain a federal UIC permit for HF operations in DI states involving the use of diesel fuel would impose significant burdens on operators and impede oil and gas production.

1. The proposed definition of diesel fuel is overly expansive

One of the key sources of unnecessary burdens is the overly expansive definition of "diesel fuel" EPA proposes to use to determine the applicability of the permitting requirements. By including within the definition of "diesel fuel" materials that Congress did not intend to regulate, EPA will subject a broader array of HF activities to its proposed federal permitting requirements than is warranted.

³⁹ 69 Fed. Reg. 42,341, 42,343 (July 15, 2004).

⁴⁰ 65 Fed. Reg. 2,889, 2,892 (Jan. 19, 2000).

⁴¹ 69 Fed. Reg. at 42,343.

HESI believes that EPA's proposed use of CASRNs to define "diesel fuel" is appropriate.⁴² A CASRN is a unique numeric identifier which designates only one chemical substance.⁴³ The use of CASRNs to define diesel fuel provides industry with a clear and objective standard and is therefore consistent with EPA's obligations to "promote predictability and reduce uncertainty."⁴⁴ Moreover, as the Draft Guidance notes, industry routinely uses CASRNs as the standard for referencing chemical substances.⁴⁵ For example, HESI makes available on its website CASRNs for chemicals used in fracturing fluids.⁴⁶ Similarly, the marketplace for fuels is based on CASRNs. Were HESI or another company to purchase diesel fuel for use in HF operations, that material would be identified as "diesel fuel" based on its CASRN. The use of CASRNs will also facilitate both enforcement and compliance because the presence of diesel fuels in an additive in more than *de minimis* amounts would be indicated on the Safety Data Sheet for the additive through the inclusion of an ingredient name (*i.e.*, diesel fuel) and a CASRN. For these reasons, HESI believes a definition based on CASRNs is practical for industry to comply with and for EPA to enforce.

However, HESI believes that by expanding the definition of "diesel fuel" to include six CASRNs, EPA has swept in materials that are not considered diesel fuel. EPA does not have carte blanche to assume that Congress left EPA free to define "diesel fuel" as it sees fit to somehow better prevent endangerment of USDWs because it did not specifically define the term in the Energy Policy Act of 2005. Rather, the term "diesel fuel" as used in the Energy Policy Act must be given its ordinary meaning.⁴⁷ In fact, the legislative history of the provision of the Energy Policy Act of 2005 excluding hydraulic fracturing from the definition of underground injection demonstrates that Congress meant to use the term "diesel fuel" in its ordinary sense. That legislative history shows that Congress added the "diesel fuel" exception in response to EPA statements in its 2004 study of hydraulic fracturing specifically addressing the use of diesel fuel in fluid used in hydraulically fracturing CBM reservoirs.⁴⁸ However, the EPA study report provides no indication that the Agency was using the term in anything other than its ordinary sense. In this case, the ordinary, common-sense meaning of "diesel fuel" is the fuel typically sold at service stations or otherwise sold commercially as diesel fuel for use in diesel engines – CASRN 68334-30-5 (Fuels, Diesel) and CASRN 68476-34-6 (Fuels, Diesel, No. 2).⁴⁹

⁴² Draft Guidance at 9.

⁴³ Chemical Abstracts Service, *CAS Registry and CAS Registry Numbers* (June 14, 2012), available at <http://www.cas.org/expertise/cascontent/registry/regsys.html>.

⁴⁴ Exec. Order No. 13,563 (Jan. 18, 2011), 3 C.F.R. 215.

⁴⁵ Draft Guidance at 7.

⁴⁶ See HESI, *Fluids Disclosure* (Mar. 30, 2012), available at http://www.HESI.com/public/projects/pubsdata/Hydraulic_Fracturing/fluids_disclosure.html.

⁴⁷ As the U.S. Supreme Court has repeatedly stated, under standard rules of construction statutory terms are interpreted in accordance with their ordinary meaning. See, e.g., *Schindler Elevator Corp. v. U.S. ex rel. Kirk*, 131 U.S. 1885 (2011); *Carachuri-Rosendo v. Holder*, 130 S. Ct. 2577 (2010) (in interpreting a statute, courts look to the common-sense conception of the terms used).

⁴⁸ The statement of minority views in the House report on the bill references the EPA study report and its discussion of diesel fuel use. See H.R. Rep. 109-215(I) at 417-419. In addition, Senator Jeffords' floor statement concerning the bill cites the EPA study report as the source of concern about the use of diesel fuel in hydraulic fracturing fluids. See 151 Cong. Rec. 57,267-01 (June 23, 2005).

⁴⁹ When diesel fuel has been used in the past in HF additives, it has generally been a substance component bearing one of these CASRNs.

This common sense meaning of “diesel fuel” is consistent with EPA’s own prior regulatory interpretations. In particular, EPA defines diesel fuel under the Clean Air Act as a fuel sold in the United States that is (i) suitable for use in diesel engines, and that is (ii) commonly or commercially known as No. 1 diesel fuel or No. 2 diesel fuel.⁵⁰ Under this definition, only CASRN 68334-30-5 (Fuels, Diesel) and CASRN 68476-34-6 (Fuels, Diesel, No. 2) are considered to be “diesel fuel.”

This approach also focuses the definition of “diesel fuel” on those substances which are assigned diesel fuel as a primary name under the CASRN system. At the same time, this approach would avoid reliance on synonyms, which would result in the inclusion of products that may have been referred to as “diesel fuel” at various times, in some cases for unknown reasons. Such reliance on synonyms can lead to clearly erroneous conclusions, as EPA’s proposed list of substances to be included in the definition of “diesel fuel” amply demonstrates.⁵¹

In contrast, the ordinary meaning of “diesel fuel” does not extend to other chemical substances defined as “diesel fuel” in the Draft Guidance such as CASRN 68476-31-3 (Fuel Oil, No. 4), CASRN 8008-20-6 (Kerosene), and CASRN 68410-00-4 (Distillates (Petroleum), Crude Oil). None of these substances are commonly or commercially referred to as diesel fuel. Kerosene, for example, is a commonly known fuel for use in cooking and lighting, separate and distinct from what is commonly considered to be diesel fuel for use in diesel engines. Kerosene would not be used to run a diesel engine. Therefore, an ordinary meaning of “diesel fuel,” as Congress would have understood the term, cannot be said to include kerosene. In addition, Distillates (Petroleum), Crude Oil is a single-cut heavy end distillate product that is typically used as a solvent, not as a fuel oil. In fact, if used as a fuel, the product’s physical properties are such that it would likely cause significant damage to a diesel engine. Fuel oil No. 4 is likewise a heavier end distillate that is typically used in commercial heating and may be used on ships. These products are not commonly or commercially referred to as No. 1 diesel fuel or No. 2 diesel fuel and would not qualify as “diesel fuels” under EPA’s Clean Air Act regulatory definition.

Thus, it is clear that the Draft Guidance’s current definition of “diesel fuel” includes substances that are in no way considered diesel fuel. EPA should limit its definition of “diesel fuel” to substances that are (i) primarily referred to as diesel fuel, (ii) specifically designed for use in diesel engines, and (iii) already regulated as diesel fuel under the Clean Air Act. These are the substances that Congress intended to include within the Agency’s authority. Certainly, any further expansion of the recommended definition beyond the six CASRNs identified by EPA

⁵⁰ See 40 C.F.R. § 80.2(x). This definition also includes biodiesel, which EPA has specifically excluded from its proposed definition of “diesel fuel” for purposes of the draft guidance.

⁵¹ EPA’s inclusion of CASRN 68410-00-4 (Distillates (Petroleum), Crude Oil) within the definition of “diesel fuel,” which is based on the Agency’s conclusion that “diesel fuel” is a synonym for this substance, demonstrates the dangers of relying on synonyms. The only basis cited by the Agency for its conclusion is the use of synonyms for this substance that contain the word “diesel” and that have been used by companies submitting studies that are reflected in EPA’s TSCA Test Submission (“TSCATS”) database. However, the studies in question (as reflected in the Substance Registry Service database cited by EPA) are nearly 20 years old. Moreover, one of the synonyms is “diesel fuel (VDF);” VDF is an acronym for vegetable diesel fuel, which is a form of biodiesel. Whatever else might be said of “distillates (petroleum), crude oil,” it is clearly not biodiesel (which the Draft Guidance specifically exempts from the definition of “diesel fuel in any event). Therefore, the appearance of “diesel fuel (VDF)” in TSCATS as a synonym for Distillates (Petroleum), Crude Oil is unquestionably an error.

in the draft guidance would only take EPA even further afield from the substances Congress intended to authorize EPA to regulate and would inappropriately expand the scope of EPA's regulation of HF operations.

At the same time, HESI also does not support EPA's use of alternative descriptions of "diesel fuel."⁵² Alternative descriptions based on carbon numbers, boiling ranges, and/or suitability for use in diesel engines would potentially sweep in multiple materials not intended by Congress to be regulated and would create substantial uncertainty for the industry in contravention of Executive Order No. 13563. For example, the Draft Guidance identifies CASRN 64741-44-2 (Distillates (petroleum), Straight run middle) as a substance with the same chemical and physical properties as the six CASRNs EPA defined as diesel fuel and that could be considered diesel fuel under an alternative description.⁵³ However, inclusion of this substance in the definition of "diesel fuel" would be inappropriate because it is generally not itself used as a fuel. Instead, this substance is a component blended with other "cuts" from the petroleum distillation process to produce multiple fuels.

Moreover, the use of the alternative descriptions for "diesel fuel" would create substantial uncertainty about what is regulated and what is not. EPA itself acknowledges that it is not able to estimate how many wells would be subject to UIC permitting requirements under an alternative definition based on carbon number range, boiling point range and the fact that a substance "could be used" to run a diesel engine.⁵⁴ In fact, one of the chief concerns about a description based on suitability for use in diesel engines is that it would encompass a broad range of substances that could be used to run a diesel engine – albeit poorly – but that are not formulated for use in a diesel engine. Use of these alternative definitions of "diesel fuel" would also create uncertainty for industry because as new substances are created, they could be included in the definition of "diesel fuel" and disrupt oil and gas production. At the same time, there is no evidence that an expanded definition of "diesel fuel" would better prevent endangerment of USDWs given the minimal risk that HF operations in general pose to USDWs.

Likewise, EPA should not adopt an approach that results in a constantly changing definition of "diesel fuel." Such an approach would only create an unsettled regulatory landscape for the industry with no corresponding environmental benefit. Rather, the Agency should seek to use a settled definition that will contribute to regulatory certainty. Accordingly, EPA should continue to base its definition of "diesel fuel" on CASRNs, and should only consider adding CASRNs to its list after notice and ample opportunity for public comment.

⁵² In the *Federal Register* notice of the Draft Guidance, EPA requested comment on alternative descriptions of diesel fuel. 77 Fed. Reg. 27,451, 24,454 (May 10, 2012).

⁵³ *Id.*

⁵⁴ The inclusion of CASRN 68410-00-4 on EPA's proposed list of substances constituting "diesel fuel" again illustrates the problem. As EPA notes, the TSCA description of diesel fuel states that it consists of hydrocarbons having carbon numbers predominately in the range of C9 through C20. 77 Fed. Reg. at 27,453. However, the description for CASRN 68410-00-4 indicates that it consists of hydrocarbons having numbers predominately in the range of C11 through C50, which overlaps but is much broader than the range for diesel fuel.

2. The proposed permitting framework addresses issues already covered by state programs

In addition to proposing to use an overly broad definition of “diesel fuel,” EPA plans to impose its own separate regulatory scheme that would cover many of the same aspects of oil and gas development the states are already successfully regulating. For example, despite EPA’s continued claims that it does not regulate oil and gas production wells,⁵⁵ the Draft Guidance would impose SDWA cementing and casing requirements on new wells that are hydraulically fractured with fluids containing diesel fuel, including recommendations that surface casing and cement extend through the base of the lowermost USDW.⁵⁶ However, as EPA admits in the Draft Guidance, surface casing and cementing requirements are already addressed under state programs.⁵⁷ For example, recent regulations adopted by PADEP require that cementing and casing be extended at least 50 feet below the deepest fresh groundwater.⁵⁸ These requirements are similar to standards in other states such as Michigan⁵⁹ and New York.⁶⁰

Similarly, the Draft Guidance sets forth recommendations for mechanical integrity testing for wells being hydraulically fractured with fluids containing diesel fuels, including provisions for pressure testing and submitting cement bond and post-fracture tracer logs.⁶¹ Again, state programs already include detailed requirements to ensure mechanical integrity. For example, Michigan requires a pressure test to determine the mechanical integrity of the tubing, casing, and packer at least once every five years.⁶² Pennsylvania requires an operator to conduct well inspections on a quarterly basis to ensure mechanical integrity.⁶³

Because the states are already successfully protecting groundwater resources, the requirements being imposed under EPA’s proposed federal permitting scheme will do little to strengthen environmental safeguards for the protection of USDWs.

3. The proposed requirements are overly prescriptive and will impose unnecessary burdens on operators

While the Draft Guidance addresses many of the same areas as the state oil and gas regulatory programs, it does it in a way that is prescriptive and that imposes many additional requirements for operators in DI states that would be required to obtain federal permits for their

⁵⁵ See Class II Wells – Oil and Gas Related Injection Wells (Class II), available at <http://water.epa.gov/type/groundwater/uic/class2/index.cfm>.

⁵⁶ *Draft Guidance* at 20 – 21.

⁵⁷ *Id.* at 21.

⁵⁸ See 25 Pa. Code § 78.83 (c) (“The operator shall drill to approximately 50 feet below the deepest fresh groundwater or at least 50 feet into consolidated rock, whichever is deeper, and immediately set and permanently cement a string of surface casing to that depth.”).

⁵⁹ See Mich. Admin. Code r. 324.408 (Surface casing shall be set a minimum of 100 feet below the base of the glacial drift into competent bedrock and 100 feet below all fresh water strata) available at http://www7.leg.state.mi.us/orr/Files/AdminCode/102_94_AdminCode.pdf.

⁶⁰ See 6 NYCRR § 554.1 (d) (“surface casing shall be run in all wells to extend below the deepest potable fresh water level”).

⁶¹ *Draft Guidance* at 25.

⁶² See Mich. Admin. Code r. 324.805, available at http://www.michigan.gov/documents/deq/ogs-oilandgas-regs_263032_7.pdf.

⁶³ See 25 Pa. Code § 78.88, available at <http://www.pacode.com/secure/data/025/chapter78/chap78toc.html>.

HF operations. The permitting and construction standards that the Agency would impose are inconsistent with existing and effective state programs in key respects, unnecessarily burdensome, and will result in significant delays in oil and gas production.

For example, the proposed permit application process would impose significant new information requirements on well operators that go beyond what has traditionally been required by the states. Among other things, operators would be required to provide a variety of information as part of an application for a UIC permit that would not typically be required in connection with a state Application for Permit to Drill (“APD”). This information would include the following:

- Area of Review (“AoR”) – While state regulations typically require an operator to identify existing water wells within a specified distance from the wellpad, the Draft Guidance goes beyond this and would require operators of horizontal wells to identify all potential conduits for potential fluid movement over a much more extensive area based on the presence of a wellbore lateral thousands of feet below ground. Operators would then be required to undertake corrective action on these “potential conduits” even though the laterals for such horizontal wells are generally 4,000 feet or more below the surface.
- Locations of known or suspected faults or fractures that may transect the confining zone – Operators would be required to undertake an extensive analysis of faults that might transect a confining zone anywhere within the broad AoR and provide maps and/or cross-sections of the AoR even if the hydraulic fracturing activity would take place over a mile beneath the surface and with thousands of feet of rock – including multiple layers that are relatively impermeable – separating a confining zone adjacent to a USDW from any fractures that might conceivably be created as a result of the hydraulic fracturing process.
- Baseline geochemical information on USDWs and “other subsurface formations of interest” – Operators may be required to sample and extensively analyze a wide variety of formation fluids throughout the AoR and across any “subsurface formations of interest,” whereas state regulations typically require such analysis for only the formation that is the target of the fracturing operation.
- Plan for monitoring of USDWs – Operators will have to prepare plans for monitoring USDWs within the AoR for an indeterminate period after HF operations are concluded.
- Plugging and abandonment plans – Operators will be required as part of the UIC permit application to prepare a plan for engaging in an activity – plugging and abandoning a production well – that may not occur for decades. State oil and gas regulatory programs, which typically address plugging and

abandonment of wells in detail, do not require preparation of plugging and abandonment plans until much closer to the time that activity is to occur.⁶⁴

In addition, the Draft Guidance includes detailed disclosure requirements regarding the composition of fracture fluids that will have to be provided in advance of the construction of the well. The required information would include the volume and range of concentrations for each constituent of the proposed fracturing fluid. Requiring “pre-frac disclosure” of this type is impractical and burdensome for several key reasons:

- The Draft Guidance would require operators to estimate the types and amounts of chemicals to be used at a time when that information may simply not be known or when information that is available may be subject to change. For example, at that stage an operator may not have formulated specific plans for HF operations because it is using information obtained from the process of drilling the well.
- Even if the operator has formulated a specific plan for fracturing a well, an operator may end up using a different service company to perform a hydraulic fracturing job than originally planned due to scheduling or other issues, resulting in the use of an entirely different set of product additives.
- Moreover, HF designs are often continuously adjusted and revised as the well is drilled and more information is obtained about well-specific conditions (e.g., target formation characteristics).

As a result, the information that might be provided in a “pre-frac” submission regarding a potential HF design for the well would in many cases change depending upon adjustments made at the well site and during the actual HF operations themselves. Under these circumstances the “pre-frac” information would provide little certainty about the specific HF chemicals actually used at a specific well site. Nevertheless, under the Draft Guidance the operator would be required to devote resources to obtaining and reporting information about fracturing fluids that might never be used.

In addition, the burdens associated with preparing a permit application and the processing of the permit application would create the potential for significant delays in oil and gas production. Because the UIC permit application would have to be obtained prior to the initiation of construction of the well, as a practical matter an operator would have to submit its application for a federal UIC permit at around the same time it is submitting its APD to state regulatory authorities. As a result, an operator would be simultaneously – but separately – working with

⁶⁴ While the Draft Guidance suggests that these extensive permit application requirements are consistent with API standards and existing state regulatory programs, the totality of the information potentially required under EPA’s proposed approach goes well beyond existing standards. Moreover, the Draft Guidance indicates that some of this information may be needed to address issues such as “concerns about inducing seismic events involved with HF.” *Draft Guidance* at 19. Aside from the fact that the National Academy of Sciences has recently confirmed that hydraulic fracturing does not pose a significant seismic risk, National Research Council, *Induced Seismicity Potential in Energy Technologies* at 1 (2012, prepublication version) – a conclusion supported by scientists at the U.S. Geological Survey – these types of concerns are beyond EPA’s authority, which is limited to regulating the use of diesel fuel in fracture fluids.

federal and state regulators, who would be reviewing many of the same aspects of well construction and completion. This would create the prospect that changes requested by one regulator would have to be communicated to the other regulators, leaving the operator shuffling back and forth. In addition, as noted above, the operator may not have developed specific plans for HF operations before the well is even constructed, leading to potential changes in information submitted with a UIC permit application. To the extent these types of changes must be reported to EPA, they would create the potential for further delays.

Moreover, the Draft Guidance would require a public comment period concerning the permit application of at least 30 days, and at least 30 days' notice of public hearing.⁶⁵ These procedural requirements would potentially add months of delay before construction of a well could even begin.

Nor would the issuance of a UIC permit end the possibility of delays resulting from EPA's proposed federal process. Before an operator could begin actual HF activities, the operator would be required to submit a notice of completion of construction and obtain an additional approval from an EPA regulator before the "injection," *i.e.*, the HF process, could begin.⁶⁶ As part of this approval process, the operator would be required to submit the results of pressure testing and logging of the constructed well, all of which would require expertise to interpret. This additional approval step would result in further significant delays in production, which could be very disruptive given the issues that operators often face in trying to schedule experienced personnel to conduct HF operations.

The prescriptive nature of EPA's proposed approach would impose other burdens on industry as well. For example, as noted above, the Draft Guidance states that EPA permit writers should require the submission of a cement bond log prior to perforation of the well. Cement bond logs are only one means of demonstrating the mechanical integrity of a well and state programs typically provide operators with more flexibility in demonstrating that a well has been properly cemented.⁶⁷ EPA's proposed approach would in essence duplicate what is already being done at the state level and add unnecessary costs for new projects.

The potential burdens on operators under EPA's proposed approach would persist well into the oil and gas production phase – perhaps even extending throughout the life of the well – even though the injection activity that triggered federal permitting requirements would have long since ended. The Draft Guidance tries to mitigate the burdensome effects of having continued federal oversight of a producing oil and gas well. However, the Agency's proposed solutions both have potentially significant burdens associated with them. First, the Draft Guidance recommends that permit writers consider allowing an operator to "convert" a well out of the UIC program after the hydraulic fracturing operations have ended.⁶⁸ However, the Draft

⁶⁵ *Draft Guidance* at 31 (citing 40 C.F.R. § 124.10).

⁶⁶ *Id.* at 27 (finding that existing reporting requirements requiring notification of construction completion, 40 C.F.R. § 144.51(m), would apply to wells hydraulically fractured where diesel fuel is used).

⁶⁷ The Pennsylvania Department of Environmental Protection recently updated its mechanical integrity testing regulations to require quarterly inspections by the operator. See 25 Pa. Code. § 78.88. Similarly, the Michigan Department of Environmental Quality requires operators to conduct a pressure test to determine the mechanical integrity of the well. See Mich. Admin. Code r.324.805.

⁶⁸ *Draft Guidance* at 15.

Guidance also indicates that before being allowed to convert out, an operator would be required to monitor USDWs for an indeterminate amount of time in order to demonstrate that the HF operations have not endangered USDWs within the AoR.⁶⁹ Moreover, under this approach an operator would have to go through the entire permit process again if it wanted to refracture the well. The alternative identified by the Draft Guidance – managing the well as temporarily abandoned – would still require the operator to comply with reporting and other obligations such as financial assurance obligations (even if at reduced levels) and to take other, unspecified actions to “ensure that well integrity is maintained and injected fluids do not migrate out of the injection zone during production.”⁷⁰

Finally, the Draft Guidance contains requirements and recommendations even for existing wells that are to be hydraulically fractured at some point in the future with fluids containing diesel fuel.⁷¹ Under the Draft Guidance, these wells would become subject to EPA well construction standards and may need to be modified even if the wells were originally constructed in accordance with prevailing state standards and have had no issues related to groundwater contamination.⁷²

4. EPA’s proposed approach is inconsistent with the requirements of the SDWA

In light of these burdensome requirements, the approach proposed by EPA does not comport with the requirements of the SDWA. Under Section 1421(b)(2) of the SDWA – which EPA fails to even acknowledge in its Draft Guidance – EPA has an obligation to avoid imposing regulatory requirements that would interfere with or impede oil and gas production unless such requirements are essential to protect USDWs.⁷³ Given that a number of its proposed requirements set forth in the Draft Guidance would adversely affect oil and gas production, the statute requires EPA to determine that these proposed requirements are essential to protect USDWs.

EPA has made no attempt to make such a demonstration. Indeed, given the history of safe use of hydraulic fracturing and the lack of any confirmed evidence of contamination of USDWs due to HF operations discussed above, it is not clear how EPA could demonstrate that any of its proposed requirements are *essential* to protect USDWs.

In fact, as discussed above, EPA’s own studies of fracturing of coalbeds indicate that its proposed requirements are *not* essential to protect USDWs because HF activities pose little or no threat to USDWs. As also noted above, many subsequent studies have confirmed that any threat to USDWs associated with hydraulic fracturing of other types of formations such as

⁶⁹ *Id.*

⁷⁰ *Id.*

⁷¹ *Id.* at 23.

⁷² *Id.*

⁷³ See 42 U.S.C. § 300h(b)(2). EPA cannot argue that this provision does not apply to its regulation of HF activities. The Agency has taken the position – correctly in HESI’s view – that Section 1425 applies to HF operations, see *Draft Guidance* at 32-34, and Section 1421(b)(2) applies to the same oil- and gas-related activities as Section 1425. Moreover, EPA has previously stated expressly that the provisions of Section 1421(b)(2) apply to hydraulic fracturing. 69 Fed. Reg. 42,341, 42,343 (July 15, 2004).

shales is likewise minimal.⁷⁴ As a result, EPA has not justified the conclusion that the approach set forth in the Draft Guidance is essential to protect USDWs from a component in fracturing fluids. Indeed, EPA has not demonstrated that there is a basis for imposing *any* federal UIC regulatory requirements on HF activities with fluids containing diesel fuels.⁷⁵

At the same time, under Section 1425 of the SDWA, EPA must respect states' flexibility in administering approved Class II UIC programs.⁷⁶ Under Section 1425, states implementing Class II programs are not required to comply with EPA's regulatory requirements for Class II wells. Instead, EPA may approve these programs if they merely comply with minimum requirements set out in Section 1421 of the SDWA.⁷⁷ For example, a state must be able to demonstrate that its UIC program prohibits injections that are not authorized by permit or rule or that authorized injections will not endanger drinking water resources.⁷⁸

EPA has previously acknowledged that Section 1425 "leaves a great deal more discretion to the State to develop and EPA to approve State UIC programs" than does Section

⁷⁴ Although EPA has released a draft report indicating that constituents from hydraulic fracturing may be a source of contamination of groundwater in Pavillion, Wyoming, the Agency has made no conclusive findings of such contamination. In December 2011, EPA released a draft report of an investigation of groundwater contamination in Pavillion, Wyoming which concluded that "inorganic and organic constituents associated with hydraulic fracturing have contaminated groundwater at and below the depth used for domestic water supply." EPA, *Draft Investigation of Ground Water Contamination near Pavillion, Wyoming* at 39 (Dec. 2011), available at http://www.epa.gov/region8/superfund/wv/pavillion/EPA_ReportOnPavillionDec-8-2011.pdf ("Draft Investigation Report"). HESI has submitted comments on the Draft Investigation to EPA which included a critique of EPA's investigation conducted by Gradient and Environment Resources Management ("ERM") – two highly regarded scientific firms. The Gradient/ERM critique concluded that EPA's study design was flawed, the study implementation (i.e., field work and data quality evaluation) was very poor, and the analysis of the data was not based on sound science. Gradient & Environmental Resources Management, *Review of US EPA's "Draft Investigation of Ground Water near Pavillion, Wyoming"* at iv (June 25, 2012). In addition, the Bureau of Land Management ("BLM"), a sister agency of EPA, has submitted comments on EPA's Draft Investigation Report that criticizes the scope and implementation of the EPA's study and describes EPA's conclusions as premature. See Letter from BLM State Director Wyoming State Office BLM to James B. Martin Regional Administrator EPA Region 8 (Mar. 1, 2012). In the meantime, EPA has conducted an additional round of sampling of the deep monitoring wells in the Pavillion study area based on a recognition that further sampling "is important to clarify questions about the initial monitoring results." EPA Region 8, *Statement on Pavillion, Wyoming Groundwater Investigation* (Mar. 8, 2012), available at http://yosemite.epa.gov/opa/admpress.nsf/20ed1dfa1751192c8525735_900400c30/17640d44f5be4ccf852579bb006432de!OpenDocument. It appears that this additional sampling activity has confirmed the concerns of BLM and others regarding the development of the deep monitoring wells and the reliability of the data from those wells. See *Talking Points for the USGS Sampling Effort for the Deep Monitoring Wells at Pavillion, WY* (July 24, 2012), available at <http://wogcc.state.wy.us/pavillionworkinggrp/pwg%20Meeting%20072412.pdf>.

⁷⁵ EPA has argued that it is compelled to regulate HF operations using fluids containing diesel fuel because such activities qualify as underground injection and the SDWA prohibits underground injection without appropriate authorization under the Act. However, Congress applied different standards to underground injections associated with oil and gas development, as reflected in Sections 1421(b)(2) and 1425. In the absence of the required demonstration under Section 1421(b)(2), EPA not only is not compelled to impose federal permitting requirements on HF operations using fluids containing diesel fuel, it is prohibited from regulating those activities if its regulations would interfere with or impede oil and gas development, as the approach outlined in the Draft Guidance surely would do.

⁷⁶ See 42 U.S.C. § 300h-4.

⁷⁷ *Id.* at § 300h-4(a).

⁷⁸ *Id.* at § 300h(b).

1421.⁷⁹ For example, the Agency has stated that “States may deal with permitting considerations . . . in a variety of ways. There are many permitting approaches that may be equally effective.”⁸⁰ Although Section 1425 does not apply directly to “direct implementation” or “non-delegated” states such as New York, Pennsylvania and Michigan, Section 1425 – particularly when read in conjunction with EPA’s obligation not to interfere with oil and gas production unnecessarily – demonstrates that Congress intended that the UIC program should be implemented in a flexible manner that minimizes any interference with oil and gas production and that this flexibility should carry over to those states in which EPA implements the Class II UIC program. As discussed above, the Draft Guidance does not provide sufficient flexibility to avoid interfering with oil and gas production in DI states.

The Draft Guidance also fails to provide primacy states with adequate flexibility in administering approved Class II programs, threatening instead to disrupt approved Class II programs.⁸¹ EPA’s website continues to state that service companies performing hydraulic fracturing with fluids containing diesel fuel “must receive prior authorization through the applicable UIC program.” Although the Draft Guidance purports to apply only in DI states, it states that a UIC permit is required for such HF operations in primacy states. EPA further states that it “expects that the interpretation and recommendations in the final guidance may also be useful to state permit writers.”⁸² EPA provides no additional elaboration on how it expects primacy state permit writers to make use of this guidance, including whether EPA expects states to incorporate the guidance and demonstrate to EPA that they have done so or risk losing their primacy.⁸³ In order for states to make such a demonstration, many will need to undergo rulemaking or legislative processes in order to amend current permitting programs, which are time and resource-intensive undertakings; some states have already expressed significant concerns about this possibility.⁸⁴ In the meantime, states are vulnerable to petitions and ultimately lawsuits challenging their primacy due to an alleged failure to issue appropriate UIC permits for HF activities involving diesel fuel. As a result, the Agency’s approach has created and will continue to create significant uncertainty for HF activities in primacy states and for state primacy programs themselves.

As demonstrated above, failure to provide appropriate flexibility will result in burdensome requirements and uncertainty as well as the disruption of existing approved state Class II programs. EPA has not demonstrated that these burdens are essential to protecting USDWs. In fact, EPA’s own studies and the studies of other stakeholders demonstrate that the

⁷⁹ Groundwater Program Guidance #19, *Guidance for State Submissions Under Section 1425 of the Safe Drinking Water Act* at 2, available at http://www.epa.gov/ogwdw/uic/pdfs/guidance/guide_uic_guidance-19_primacy_app.pdf.

⁸⁰ *Id.* at 13.

⁸¹ See Industrial Commission of North Dakota, *Comments on Permitting Guidance for Oil and Gas Hydraulic Fracturing Activities Using Diesel Fuels—Draft* (June 25, 2012); Kansas Corporation Commission, *Comments on EPA Permitting Guidance for Oil and Gas Hydraulic Fracturing Activities Using Diesel Fuels—Draft: Underground Injection Control Program Guidance #84 – Docket ID no. EPA-HQ-OW-2011-1013* (June 26, 2012); Railroad Commission of Texas, *Comments on Draft Permitting Guidance for Oil and Gas Hydraulic Fracturing Activities Using Diesel Fuels* (July 2, 2012).

⁸² *Draft Guidance* at 1.

⁸³ See 42 U.S.C. § 300h-1(b)(1) (requires states with primacy under the UIC program to demonstrate compliance with newly promulgated requirements within 270 days).

⁸⁴ See Railroad Commission of Texas, *Comments on Draft Permitting Guidance for Oil and Gas Hydraulic Fracturing Activities Using Diesel Fuels* (July 2, 2012).

risk of HF fluids contaminating USDWs is minimal. Therefore, EPA's proposed approach does not comport with the SDWA. As discussed above, EPA should instead defer to state programs which have effectively regulated HF activities for many years.

III. Miscellaneous Specific Comments

A. De minimis exception

HESI supports the inclusion of a *de minimis* exception to any federal permitting requirements for HF activities using fluids containing diesel fuel. The inclusion of a *de minimis* exception would minimize the potential burdens associated with EPA's proposed permitting approach while not compromising the goal of protecting USDWs.

HESI proposes the use of a *de minimis* threshold that has two parts. First, HESI proposes a threshold of one percent of an additive. HESI believes that the volume of diesel fuel at this threshold is minimal enough that EPA's goal of protecting USDWs is still achieved. This is because all of the additives combined generally constitute less than two percent of the fluid used in hydraulic fracturing.⁸⁵ As a result, if diesel fuel constituted less than one percent of an additive, it would constitute only a very small portion of the overall fluid and any constituents of concern within the diesel fuel would be present only in minute concentrations that would not be cause for any environmental concern, particularly when further diluted in formation waters. At the same time, the inclusion of a one percent threshold for an additive would eliminate the need to engage in a burdensome permitting process as a result of the inadvertent inclusion of trace amounts of diesel in an additive. Moreover, a one percent threshold would be consistent with the standards adopted by the Occupational Safety & Health Administration for reporting hazardous chemicals on Safety Data Sheets.

For similar reasons, HESI also supports a *de minimis* threshold of one percent of the total amount in a given fracture fluid. This would effectively preclude the use of diesel fuel as a base fluid while ensuring that burdensome permitting requirements would not be imposed if trace amounts of diesel fuel were unintentionally included in a base fluid. Including a *de minimis* exception for diesel fuel based on percentage in the additive and the fluid will minimize burdens on operators while not affecting EPA's goal of preventing diesel fuel used in hydraulic fracturing activities from contaminating USDWs.

B. The Draft Guidance Should Include Measures to Ensure the Protection of Trade Secrets for Chemical Disclosures

The Draft Guidance recommends that a "detailed chemical plan describing the proposed fracturing fluid composition, including the volume and range of concentrations for each constituent[.]" be submitted to permit writers.⁸⁶ However, EPA's authority to regulate HF

⁸⁵ FracFocus, *Hydraulic Fracturing: The Process* (2012), available at <http://fracfocus.org/hydraulic-fracturing-how-it-works/hydraulic-fracturing-process>.

⁸⁶ *Draft Guidance* at 20.

activities under the SDWA is limited to the use of diesel fuels in fracturing fluids.⁸⁷ Therefore, any disclosure requirements relating to the composition of the fluids used in hydraulically fracturing a well should be focused only on the diesel fuel component of the fluids consistent with the scope of the Agency's authority.

If EPA continues to require that fracturing fluid compositions be submitted to permit writers, EPA should specifically address protections for the identities and concentrations of chemicals that are trade secrets. As EPA well knows, the protection of trade secrets is necessary to protect industry investment and provide incentives for the types of innovation that have made possible the dramatic increases in shale gas production the Administration has made a central component of its energy policy. HESI invests hundreds of millions of dollars every year to develop new and innovative products that enhance the ability of operators to optimize production from wells and products that offer environmental benefits, such as products that facilitate the recycling of flowback and produced waters.

EPA must take appropriate steps to protect any trade secrets that are submitted to permit writers in connection with UIC permits for HF activities. In particular, the Agency must take into consideration the fact that disclosure of fracturing fluid constituents implicates trade secret protection issues in a way that disclosure regarding the make-up of the waste products normally injected into UIC wells does not. For example, EPA should allow any disclosure of fracturing fluid constituents to be made in a way that does not require constituents to be linked to the additives in which they are found.

Conclusion

HESI appreciates the opportunity to submit these comments on the Draft Guidance. As discussed above, HESI believes creating a separate federal permitting scheme for HF activities involving the use of diesel fuel is unnecessary given the effective state permitting programs and that a federal permit will not yield any added benefits in protecting USDWs. In fact, in the absence of evidence that a separate federal permitting scheme for these activities is essential to protect USDWs, EPA is foreclosed from adopting such a scheme because it will impede oil and gas development. In addition, many of the proposed requirements are overly prescriptive and unworkable given the unique attributes of hydraulic fracturing. For these reasons, HESI believes that EPA must defer to state regulators' first-hand experience and knowledge regarding hydraulic fracturing operations in their jurisdictions, and not implement a federal permitting requirement.

If EPA does move forward with its proposed federal permitting requirements, the Agency should limit the definition of "diesel fuel" to substances that are generally recognized as being diesel fuel and that are specifically designed for use in diesel engines. In addition, HESI requests that EPA include a *de minimis* exception of one percent of the overall fluid and each additive, and review the Agency's authority to require the disclosure of the complete composition of fracture fluids instead of simply any diesel fuel component.

⁸⁷ "The term 'underground injection' . . . excludes . . . the underground injection of fluids or propping agents (other than diesel fuels) pursuant to hydraulic fracturing operations related to oil, gas, or geothermal production activities." 42 U.S.C. § 300h(d)(1).

Again, HESI appreciates the opportunity to submit these comments on such an important issue, and respectfully requests that EPA consider its comments when revising the Draft Guidance.